REMARKS

Claims 1, 26 and 50 were rejected under 35 U.S.C. 102(e) as being anticipated separately by Burke et al. (USP 6,597,785), Boakes (USP 5,946,390), and Manssen et al. (USP 5,963,876) . Claims 2-15 and 27-31 were rejected under 35 U.S.C. 103(a) as being unpatentable over Manssen in view of Bayless (USP 5,754,636). Claims 16-21 and 32-45 were rejected under 35 U.S.C. 103(a) as being unpatentable over Manssen in view of Burke (USP 6,597,785) or Boakes (USP 5,946,390). Also, claims 22-25 and 46-49 were rejected under 35 U.S.C. 103(a) as being unpatentable over Manssen in view of Robinson (USP 6,408,067). The rejections are respectfully traversed and reconsideration is requested.

The present embodiments of the telephone dialer memory architecture provide for interpreting the prefix portion of an originally-dialed telephone number sequence and retrieving an associated, yet different, prefix entry, stored efficiently in memory. Once retrieved, a modified output dialing sequence is generated based on the combination of the originally-dialed sequence and the new prefix entry from memory. The prefix portion of the originally-dialed sequence may be variable in length. Furthermore, an action descriptor that flexibly determines how an originally-dialed number should be processed is included within each prefix table entry. See claims 1, 26, and 50.

For example, as shown in Fig. 5 and 7 of the application, when a user dials the telephone number "1-212-345-XXXX", the first digit "1" is matched with a particular entry in Prefix table 54 (step 660). The prefix table entry associated with "1" includes the data string "1FA3(START)" where (START) is the base address in memory for Long Distance (LD) Pointer table 56A. The prefix "1" is separated from the action descriptor "A3(START)" by the punctuation code "F". In this instance, the action descriptor specifies, using "A", that the digits to be dialed (DTD) after prefix "1" must be ten (10) digits before the outgoing number is dialed. The "3" specifies that the LD pointer table 56A will use a three (3) hexadecimal digit memory address while (START) specifies that address, e.g., 0x0160.

Once the action descriptor is interpreted (step 665), the first three telephone number digits "212" after the prefix are used to access LD Pointer table 56A at the offset "212" from the table's base address specified in the action descriptor (step 670). The content of the LD Pointer table

"4" is then used as a pointer to access the long distance access code "D(START) 1010789F" in the Long Distance (LD) table 52 (step 680). The "D" before the access code "1010789F" triggers an additional check of the remaining digits of the originally-dialed sequence. The following (START) address is the base address of Predial table 58. Using an offset based on "345-XXXX", the value "1" is detected which enables the replacement of the original prefix "1" with the new long distance access code prefix "1010789" (step 685). Thus, the generated output dialing sequence becomes "1010789-212-345-XXXX" (step 699). If the value "0" were detected in Predial table 58, the originally-dialed sequence "1-212-345-XXXX" would be generated at step 699.

Figure 5 and 7 also illustrate the scenario where a user originally dials an international number "011-44-32XXXXX." In this instance, a different length prefix "011" is interpreted and used to ultimately retrieve the new prefix "10106667" from LD table 52. Thus, the generated output dialing sequence becomes "10106667-44-32XXXXX" (step 699). Because international numbers can vary in length, the action descriptor "EB3(START)" specifies the DTD digit of "E" followed by "B". The hexadecimal value "B" indicates that at least eleven digits must be dialed before the outgoing sequence is generated while "E" requires that two seconds must elapse after the last digit dialed to trigger the dialing. The elapsed time requirement enables the processing of originally-dialed numbers with different lengths by identifying the end of a dialing sequence after an elapsed time.

Fig. 5, where prefixes of "1" and "011" are used, respectively, illustrates that the present embodiments may use "a variable length prefix portion" (claims 1, 26, and 50) of the originally-dialed telephone number to generate a new outgoing dialing sequence. The variable length prefix portion of the originally-dialed sequence may be one digit or extend the length of the originally-dialed sequence.

Figure 5 also shows the multi-tiered or layered memory table architecture of the present embodiments wherein an originally-dialed number points to a Prefix table 54 entry that points to an LD Pointer table 56 entry that points to a LD table 52 entry with the new prefix to be added to the outgoing dialing sequence. The Predial table 58 arguably provides a fourth layer. The action descriptor leverages this layered memory and effectively reduces the amount of memory needed by a telephone dialer because the action descriptor can point many different dialing sequences to

the same long distance access code in LD table 52 via LD Pointer table 56. The action descriptor provides processing flexibility by defining the length of the digits to be dialed, inserting an "indication of an elapsed time to trigger dialing" (see claim 5), or pointing to another memory location containing a new prefix associated with a particular long distance carrier.

The Burke et al. patent describes a method of telephone number dialing wherein a fixed-length "first portion of the telephone number to be dialed" (col. 7, lines 34-35) is compared with a look-up table (col. 5, table 2) of first portions to generate an output dialing sequence based on a dialing algorithm. The contents of the lookup table do not include an action descriptor with the ability to point to other memory look up tables. As an example, Burke et al. discloses a method in which the fixed-length "first portion" is the Numbering Plan Area Code (NPA), i.e., telephone area code. When a call is initiated, the NPA of the telephone number to be dialed is compared with a list of NPAs stored in memory and used to recover the dialing instructions and a new prefix to be appended to the output dialing sequence (Fig. 3 and 4).

While Burke et al. interprets a fixed-length "first portion" of the numbers to be dialed, the present embodiments interpret a "variable length prefix portion of the telephone number" (claims 1, 26, 50) to be dialed. Also, while Burke et al. uses an algorithm index that points to different dialing instructions embedded in a single memory look up table, the index does not contain "an action descriptor for determining how the telephone number should be processed" (claims 1, 26 and 50). In the present embodiments, the action descriptor may further point to additional dialing prefixes in additional memory look up table locations (Fig. 5). Burke et al. neither explicitly nor impliedly teaches the interpretation of a "variable length prefix" or the use of an "action descriptor."

The Boakes patent describes a method of telephone number dialing wherein a statistical analysis is used, based on the last digits of the originally dialed telephone number, to generate an output dialing sequence. When a telephone number sequence is dialed, the Boakes patent checks whether the last 3, 7, or 10 digits match a list of previously stored numbers (Fig. 3). During each call, the digits in a number that do not match the last digits (either 7 or 10) of the stored numbers are "identified as a potential prefix code" (col. 4, line 43). The potential prefix code is then stored in a statistical database where the frequency and/or number of occurrences are recorded. If one code occurs more frequently, it is considered dominant and is automatically appended to the

beginning of either a 7 or 10 digit number. If a dialed number is less than 7 digits in length, the last 3 digits are compared with a statistical database to determine whether the number dialed is an intra-system call on a private PBX.

While Boakes interprets the last 3, 7, or 10 digits of an originally-dialed telephone number sequence, the present embodiments interpret the variable length prefix portion, or first digits, of the sequence. While Boakes uses a statistical database to automatically append a dominant prefix to the outgoing dialing sequence, the present embodiments use a memory look up based on the prefix portion and action descriptor to determine the outgoing dialing sequence. Boakes neither explicitly nor impliedly teaches the interpretation of a "variable length prefix" or the use of an "action descriptor."

The Manssen et al. patent describes a method for editing a received phone number prior to placing a telephone call. By placing a device in edit mode (Fig. 2, step 66), a prefix is manually appended to the beginning of the original number to produce an edited phone number. The Manssen et al. Patent further allows a user to manually retrieve a prefix from memory and append that prefix to a received telephone number to create an edited telephone number. Manssen et al. does not interpret the prefix portion of an originally-dialed number and, based on that interpretation, append a new prefix to create a modified outgoing telephone number. Manssen et al. also appears to store the edited number in memory, resulting in the need for a large amount of memory because redundant prefixes are stored with every edited telephone number.

While Manssen et al. enables the manual addition of a telephone number prefix without considering or interpreting the telephone number's original prefix, the present embodiments interpret the originally-dialed telephone number's prefix portion and then add a new prefix portion, based on the original prefix and dialing sequence, to create a modified outgoing dialing sequence. While Manssen et al. uses large amounts of memory by storing every edited telephone number with potentially redundant prefixes, the present embodiments of the telephone dialer memory architecture reduce the amount of memory within a telephone dialer by using an action descriptor to enable the sharing of a particular prefix among a plurality of originally dialed telephone numbers. Manssen et al. neither explicitly nor impliedly teaches the interpretation of a "variable length prefix" or the use of an "action descriptor."

For the foregoing reasons, independent claims 1, 26, and 50 are not anticipated by either Burke et al., Boakes, or Manssen et al. Thus, the Applicant respectfully requests that the rejections be withdrawn.

Similarly, the Applicant requests that the Examiner withdraw the dependent claim rejections.

Dependent claims 2-15 and 27-31 were rejected under 35 U.S.C. 103(a) as being unpatentable over Manssen in view of Bayless. The Bayless et al. Patent was cited by the Examiner to show "a telephone dialing means wherein a time delay can be used when dialing digits" by inserting commas in the dialing sequence where the delays are wanted (col. 47, lines 44-48).

Dependent claims 5 and 30 refer, however, to an "indication of elapsed time to trigger dialing" while dependent claims 6 and 31 refer to an "indication of elapsed time to indicate completion of a prefix." Bayless et al. teaches a time delay that is inserted explicitly into and used during the dialing of the outgoing telephone number sequence. The "indication of elapsed time" to trigger dialing or to indicate completion of a prefix, in contrast, is a decision trigger whereby the telephone dialer waits a period of time and then decides which output dialing sequence to use. While the combination of references may teach a time delay, they do not teach the elements of the indication of elapsed time to trigger dialing or to indicate completion of a prefix. Also, with respect to dependent claims 2,3, 6-15, and 27-29, it is not seen how the use of a time delay is relevant to their rejection. Those claims are directed to other features on which the examiner has not commented. Therefore, it is respectfully submitted that there is no suggestion in Manssen et al. or Bayless et al., even if the references are combined, that would result in the claimed invention.

Dependent claims 16-21 and 32-45 were rejected under 35 U.S.C. 103(a) as being unpatentable over Manssen in view of Burke et al. According to the Examiner, Burke teaches "a look up table wherein prefix and so forth can be retrieved in addition to the number to be dialed." As described earlier, the present embodiments of the telephone dialer memory architecture utilize a multi-tiered memory table architecture wherein prefix table 54 points to LD pointer table 56 that points to LD table 52. Burke, in contrast, only uses a single look up table containing prefixes. The combination of Manssen et al. and Burke et al. do not disclose a method in which

"a portion of the telephone number identifies an entry in a pointer table...pointing to a long distance table entry" (claims 16 and 41). Neither reference uses pointers from one look up table to access another look up table.

Also, neither reference teaches the use of a "predial code to determine...whether the dialing sequence of the long distance table is used or the telephone number is passed through" (claims 17 and 42) because neither reference uses pointers to allow access to another Predial table 58. The predial code in claims 18 and 43 is also not disclosed by the combination of references. Additionally, claims 19-21, 44, and 45 utilize tables at different layers than the single look up table of Manssen et al. and Burke et al. Claims 32-40 define the action descriptor which is not disclosed in either reference or their combination. Therefore, the combination of Manssen et al. and Burke et al. does not teach the elements of the claimed embodiments.

Furthermore, there is no reason to combine Manssen et al. and Burke et al. There is no suggestion in Manssen et al. of using anything other than manual editing of the original dialing sequence to create a modified outgoing dialing sequence. There is also no suggestion in Burke that a prefix, which is automatically added to the outgoing dialing sequence, be manually modified by a user. In fact, Burke teaches away from Manssen et al. because it would neither be efficient nor logical to manually add a prefix that is subsequently automatically replaced by another prefix.

Thus, it is respectfully submitted that all claims that were rejected under 35 U.S.C. 103(a) as being unpatentable over Manssen in view of Burke et al. should be allowed.

Dependent claims 16-21 and 32-45 were rejected under 35 U.S.C. 103(a) as being unpatentable over Manssen in view of Boakes. According to the Examiner, Boakes teaches "a dialing system wherein prefixes can be inserted as part of a number to be dialed in." Boakes, however, does not teach an economical or flexible method of storing and retrieving prefixes from memory using a multi-tiered look up table architecture. For the same reasons stated with regard to Manssen et al. in view of Burke et al., the combination of Manssen et al. and Boakes, even if motivation to combine exists, do not teach every element of the claimed embodiments.

Furthermore, there is no reason to combine the references. There is no suggestion in Manssen et al. of using anything other than manual editing of the original dialing sequence to create a modified outgoing dialing sequence. There is also no suggestion in Boakes, which relies

on statistical analysis of the last digits of an originally-dialed telephone number sequence when generating the output dialing sequence, to manually insert prefixes. In fact, Boakes teaches away from manual editing by automatically inserting a prefix based on the last digits of the originally-dialed telephone number and the frequency of prior sequences.

Thus, it is respectfully submitted that all claims rejected under 35 U.S.C. 103(a) as being unpatentable over Manssen in view of Boakes should be allowed.

With regard to claim 45, the Examiner has taken official notice that "screening based on ANI and/or DAIS is notoriously well known as a means for determining fraud." Claim 45, however, is not referring to the screening or blocking of a dialed telephone number. Instead, claim 45 is referring to the embodiment illustrated in Fig. 5 wherein the telephone dialer, based on an extension such as the local exchange number, determines whether to use the generated output dialing sequence or pass through the originally-dialed sequence. Such an embodiment is not known at all in the art to the applicant's knowledge. Thus, it is respectfully submitted that claim 45 should be allowed.

Dependent claims 22-25 and 46-49 were rejected under 35 U.S.C. 103(a) as being unpatentable over Manssen et al. in view of Robinson.

The Examiner cited Robinson for the purpose that it would have been obvious "to use any well known [form] of transmitting information including DTMF into that of Robinson so that a user can receive incentives such as best rates associated with using certain service providers when completing long distance calls." According to Robinson, the apparatus may have "a port for coupling it to a personal computer so that the unit may be programmed" (col. 7, lines 38-39). Also, service provider information "may be made available via a subscription" or the apparatus may be able " to download data or receive data on a disk through the mail" (col. 7, lines 42-44). Furthermore, Robinson states that "a consumer may update the database via a personal computer" (col. 7, lines 43-44).

Because the typical interface of a personal computer (e.g., serial, parallel, or USB) does not support the transmission of information using DTMF tones, Robinson teaches the downloading of information using a port, other than the input of the apparatus DTMF detector, which connects to the user's local personal computer. Furthermore, Robinson does not teach

direct remote programming of the apparatus in that programming occurs via the user's personal computer.

Claims 23-25 and 47-49, in contrast, describe DTMF programming of action descriptors from a remote computer which are not disclosed in either Manssen et al. or Robinson. Also, claims 22 and 46 describe the retrieval of long distance access codes using LD Pointer table 56 and LD table 52 which are not related to DTMF programming or described in either reference.

Thus, the combination of Manssen et al. and Robinson, even if motivation to combine existed, does not teach the DTMF programming element or other elements of the claimed embodiments. Also, it is not obvious, to the Applicant's knowledge, to use in-band, low data rate DTMF signaling or other signaling to remotely configure the long distance pointer table of the present embodiments.

Thus, it is respectfully submitted that all claims rejected under 35 U.S.C. 103(a) as being unpatentable over Manssen in view of Robinson should be allowed.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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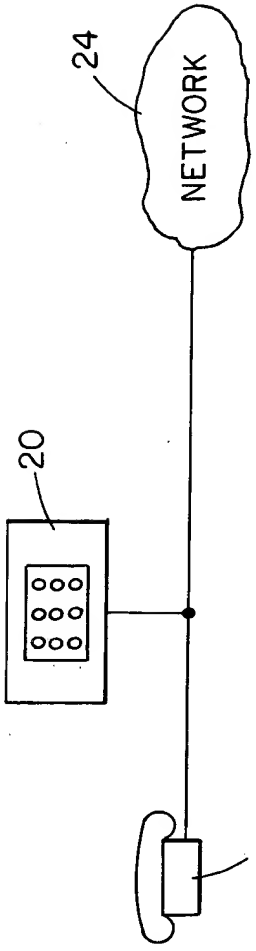

FIG. 1A
PRIOR ART

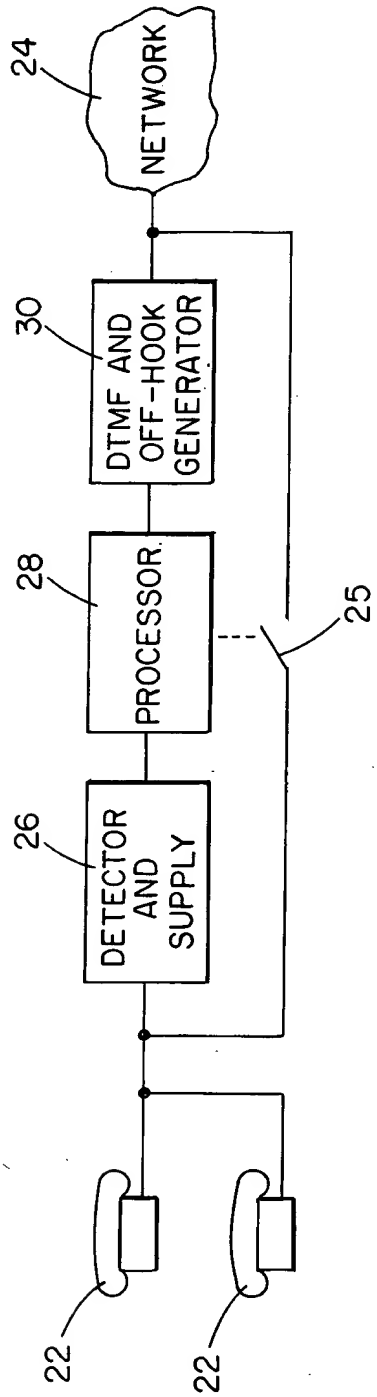

FIG. 1B
PRIOR ART

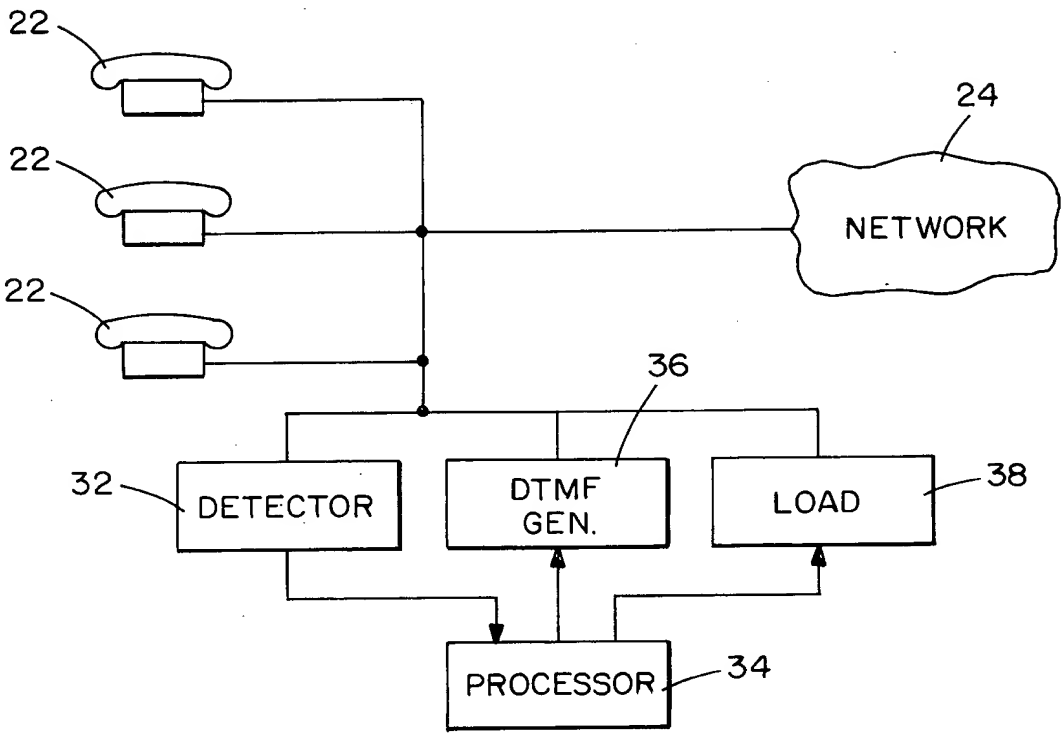

FIG. IC

PRIOR ART

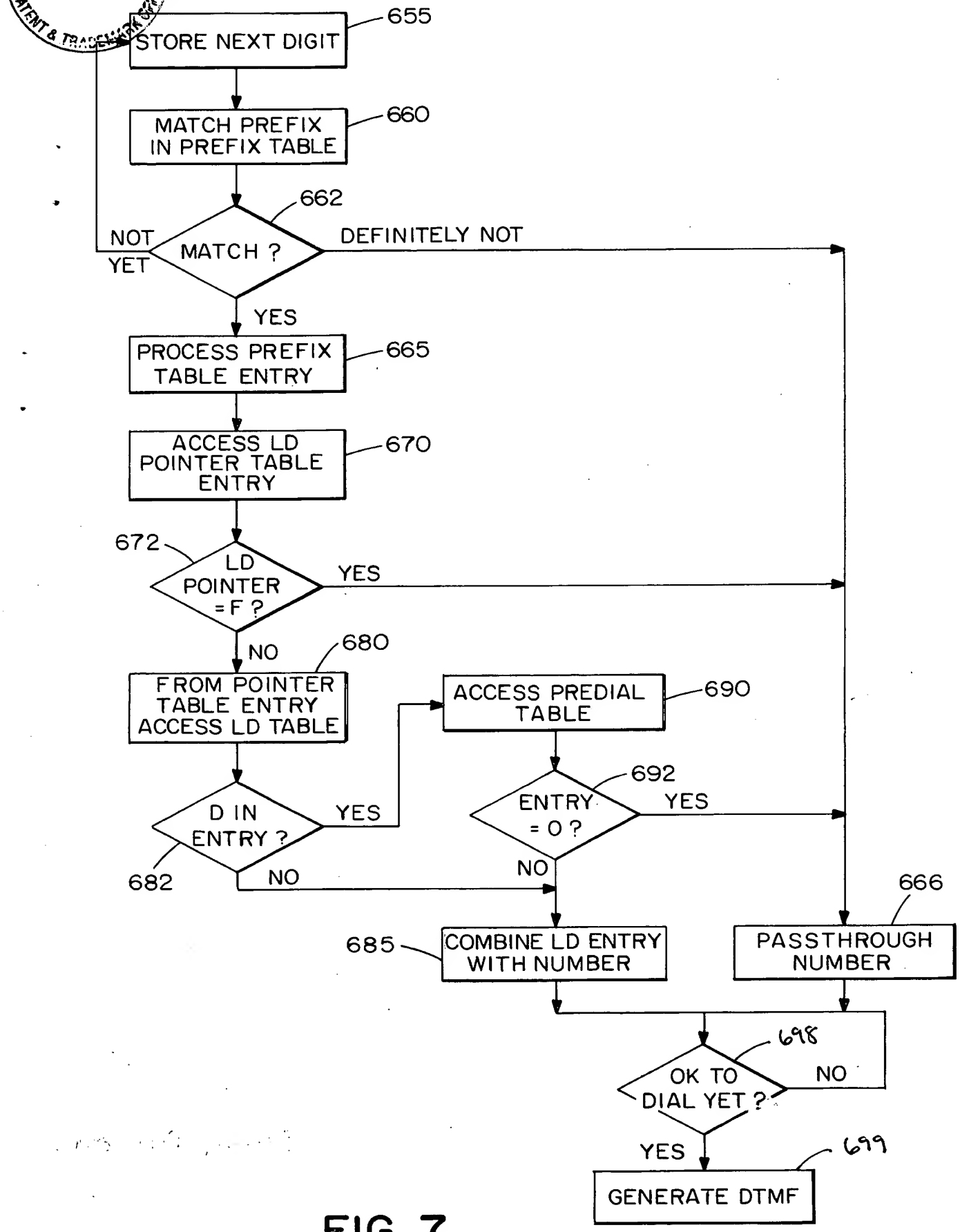

FIG. 7